How relative are purpose relative clauses?

Inês Duarte, Ana Lúcia Santos & Nélia Alexandre
Universidade de Lisboa

Published:
Duarte, I., A. L. Santos & N. Alexandre (2015) How relative are purpose relatives? *Probus*. 27.2: 237-270. Published Online: 12/04/2014
DOI: 10.1515/probus-2014-0002

Acknowledgments:

We are grateful to Aida Cardoso, who coded the acquisition data, to José Maria Moreno, Catarina Oliveira and Bernardino Tavares, for the Capeverdean data, and to two anonymous reviewers, for their comments. Nélia Alexandre is funded by the post-doctoral scholarship SFRH/BPD/67241/2009. Part of this work was developed within the project PTDC/CLE-LIN/120897/2010, developed at Centro de Linguística da Universidade de Lisboa and funded by Fundação para a Ciência e a Tecnologia.

Abstract: In this paper, we present extended argumentation against a raising analysis for every type of relative clauses. Specifically, we argue that purpose relative clauses involve raising of a null operator to Spec,CP, contrary to *that*-relatives, which involve raising of the antecedent DP. We further argue that this analysis applies to all purpose relative clauses, both subject and object purpose relatives.

After showing that all purpose relatives in European Portuguese are CPs, we present several arguments in favor of a null operator analysis of this type of structure. First, we show that parasitic gap effects support the existence of a variable in object purpose relatives and in VP adjunct purpose clauses with an object gap. We then show that Principle A effects in object purpose relatives allow to distinguish this type of relatives from *that*-relatives and support a null operator analysis of the former. The same analysis is shown to apply to subject purpose relatives. Second, we compare European Portuguese to Capeverdean, a Portuguese-related creole. We claim that the properties of purpose relative clauses in Capeverdean show that the derivation of such clauses is different from the derivation of *that*-relatives, although *wh*-movement applies in both. Finally, we suggest that an analysis distinguishing the structure of object purpose relatives from the one of object *that*-relatives may contribute to explain some acquisition facts: if purpose relatives involve movement of a null operator instead of movement of a DP, they do not give rise to intervention effects that violate the version of Relativized Minimality which Friedmann et al. (2009) argue children assume.

Keywords: Purpose relatives, purpose clauses, relative clauses, L1 acquisition, intervention effects, Portuguese, Capeverdean.

1. Introduction

In this paper we will focus on a subset of infinitival purpose clauses introduced by *para* 'for' in Portuguese.

These *para* infinitival clauses qualify as purpose relatives, if one adopts the diagnostic criteria proposed by Chomsky (1977) in his seminal paper on *wh*-movement.[1] This is the case of the examples presented in (1).

(1) a. *O peixe*$_i$ [*para* PRO *grelhar* [-]$_i$] *está aqui.*
the fish for grill.INF [-] is here
'The fish to grill is over here.'

b. *O peixe*$_i$ [*para* [-]$_i$ *ser grelhado*] *ainda não tem sal.*
the fish for [-] be.INF grilled yet NEG has salt
'The fish to be grilled doesn't have any salt yet.'

c. *Já comprei peixe*$_i$ [*para* PRO *grelhar* [-]$_i$].
already bought.1SG fish for grill.INF [-]
'I have already bought fish to grill.'

d. *Já comprei peixe*$_i$ [*para* [-]$_i$ *ser grelhado*].
already bought fish for [-] be grilled
'I have already bought fish to be grilled.'

Since it is the aim of this paper to discuss the properties of *para* purpose relative clauses, we will start by revising criteria to distinguish between true purpose clauses (see 2) and purpose relative clauses. We assume that sentences such as (1c, d), where the purpose clause occurs in final position following an object NP, are ambiguous between a relative clause structure and a VP adjunct purpose clause.

(2) a. *Ele trabalhou* [*para* PRO *ter* *dinheiro para as férias*].
he worked for PRO have.INF money for the holidays
'He worked (in order) to have money for his holidays.'

b. *Vendem-se tapetes*$_i$ *aqui* [*para* [-]$_i$ *cobrir o chão*
sell.3PL-CL carpets here for [-] cover.INF the floor
da sala].
of.the living room.
'They sell carpets here to cover the living room floor.'

c. *Ela comprou um casaco*$_i$ *ontem* [*para* PRO *dar* **[-]**$_i$
she bought a coat yesterday for PRO give.INF [-]
ao Pedro].
to.the Pedro
'Yesterday, she bought a coat for Pedro.'

These structures have been debated by Jones (1991), Beavers and Bender (2004), Bhatt (2006) a.o., the discussion being in some cases more centered on

purpose clauses and in other cases on purpose relatives (or infinitival relatives). Here, we are interested in purpose relatives and we consider VP adjunct purpose clauses only to the extent that they may present an internal structure which is similar to relatives. In particular, we will discuss (i) whether all relatives (*that*-relatives and purpose relatives) should receive the same type of analysis and (ii) whether purpose relatives are a homogeneous group.

The first part of this debate will oppose two approaches to relative clauses: a head raising analysis and a head external analysis. The head external analysis is the standard analysis assumed by Chomsky (1977, 1982) and posits a null operator-variable chain in the case of *that*-relatives (see 3). A head raising analysis assumes instead that the head is generated inside the relative clause. We consider here the raising analysis put forth by Kayne (1994), with the changes added by Bianchi (1999), for *that/que*-relative clauses. Under this analysis, the derivation of *that/que*-relative clauses involves extraction of the head of the relative clause from an internal position in the clause to Spec,CP according to the derivation in (4).

(3) *the book* [$_{CP}$ Op$_i$ *that* [$_{IP}$ *I read* t_i]][2]

(4) [$_{DP}$ *the* [$_{CP}$ [$_{DP}$ D° *book*]$_i$ [*that I bought* <[$_{DP}$ D° *book*]$_i$ > *yesterday*]]]

(Bianchi 1999: 85)

Actually, Kayne (1994) also suggests a raising analysis for non-finite relative clauses, such as past participle relative clauses. Bhatt (2006) discusses extensively non-finite relatives, arguing that subject non-finite relatives are reduced relatives in the sense that they do not involve the projection of CP and are derived by Direct

Predication. Interestingly, he suggests a raising analysis for subject non-finite relatives, which however cannot be subsumed under Kayne's approach (see 5). In contrast, Bhatt takes non-subject infinitival relatives to be CPs and to involve A'-movement of a relative operator (or a relative pronoun) to *Spec*,CP (Bhatt, 2006: 13) (see 6).[3]

(5) *The* [[$_{NP}$ ***philosopher***]$_i$ [[$_{NP}$ ***philosopher***]$_i$ *reading the Meinong text*]].
(Bhatt 2006:37)

(6) a. *a book* [Op$_i$ [PRO *to read* t$_i$]]
b. *a knife* [Op$_i$ [PRO *to cut bread* [*with* t$_i$]]]
(Bhatt 2006:11)

Therefore, the discussion concerning how similar *that*-relatives and purpose relatives are is also linked to the second problem we must consider: are purpose relatives a homogeneous group? Should we take the purpose relatives in (1a, c) and in (1b, d) to be different structures, namely, taking subject relatives to be reduced relatives? For EP, we argue that both subject and object infinitival relatives are a homogeneous group: they are all CPs and they all involve operator movement. We will equally argue that this is the structure of VP adjunct purpose clauses with gap.

Finally, we discuss crosslinguistic evidence coming from Portuguese (namely, contrasts concerning extraction and parasitic gaps) and from Capeverdean, a Portuguese-related creole spoken in Cape Verde, where purpose relatives involving extraction of PPs may leave a defective copy or a gap behind. Based on the analysis

of purpose relatives in Capeverdean, we confirm that the structure of purpose relatives is different from the one shown by *that/que*-relatives: the structure of the former involves a null operator-variable chain, as claimed in the standard analysis by Chomsky (1977, 1982), the raising analysis of Kayne (1994) and Bianchi (1999) accounting for the latter.

Child E(uropean) P(ortuguese) data may indeed support a non-uniform analysis of purpose and *that/que*-relative clauses: early emergence of object and oblique purpose relatives contrasts with what is known about the acquisition of *that/que*-object relatives. One way to explain this contrast would be to suggest that purpose relatives should not give rise to intervention effects of the type suggested by Friedmann et al. (2009) if they involve a null operator-variable chain, contrasting to what happens with *that/que*-relatives.

2. On different types of purpose clauses in European Portuguese

Working on EP adjunct clauses, Lobo (2003) has distinguished peripheral (7a) from non-peripheral (7b) purpose clauses. The distinction is both syntactic and semantic: peripheral adjunct clauses are argued to attach high in the clause structure and hence to get an interpretation of sentential modifiers; instead, non-peripheral adjuncts attach to VP (or *v*P) and are VP modifiers. In (7a), the purpose clause is a Speaker-oriented adjunct and is assumed to be a sentential modifier; in (7b), the meaning of the purpose clause does not involve any intentions of the Speaker concerning his commitment to the discourse activity. In this paper, the discussion is restricted to non-peripheral purpose clauses (the case in 7b), since these are the ones tightly related to purpose relatives.

(7) a. [*Para falar verdade*], *não gostei do livro.*

for speak.INF truth NEG liked.1SG of.the book

'Honestly, I didn´t like the book.'

b. *Saí* [*para ir ao cinema*].
left.1SG for go.INF to.the cinema
'I left to go to the cinema.'

Before starting to discuss other properties of purpose clauses, we should highlight the fact that we will be dealing here only with *purpose* relatives, i.e. infinitival relatives introduced by *para.* We should thus first start by defining the properties of purpose clauses as infinitival clauses. It is a well-known fact that European Portuguese displays both uninflected and inflected infinitives and that inflected infinitives license a *pro* or a DP subject (see Raposo 1987; Madeira 1994). Therefore, in purpose clauses in general a controlled or an arbitrary PRO is possible with an uninflected infinitive (this could be the case of 1a, c or 2a, c); alternatively, a *pro* or a DP may occur with an inflected infinitive (see 8a, b).

(8) a. *Eles trabalharam* [*para* pro *terem* *dinheiro*
they worked for have.INF.3pl money

para as férias].
for the holidays
'They worked (in order) to have money for their holidays.'

b. *Os pais trabalharam* [*para os meninos terem*
the parents worked for the kids have.INF.3pl
dinheiro para as férias].

money for the holidays

'Parents worked in order for the kids to have money for their holidays.'

Therefore, from the set of non-peripheral purpose clauses, one can identify the following subtypes: purpose clauses without a gap originated by Move where the subject is either a controlled (or an arbitrary) PRO with uninflected infinitive or a *pro* (or a DP) licensed by an inflected infinitive (9a, b); purpose clauses with a gap originated by Move, but which cannot be interpreted as relative clauses since they cannot form a constituent with their antecedent (10)[4]; and purpose relative clauses (11).

Purpose clause without gap

(9) a. *Comprei um portátil novo* [*para PRO agradar ao Pedro*].[5]
bought.1SG a laptop new for PRO please.INF to.the Pedro
'I bought a new laptop to please Pedro.'

b. *Comprei um portátil novo* [*para pro/nós agradarmos*
bought.1SG a laptop new for pro/we please.INF.1PL
ao Pedro].
to.the Pedro
'I bought a new laptop for us to please Pedro.'

Purpose clause with gap

(10) *Trouxe* [*o artigo*]$_i$ *para casa* [*para o Pedro*
brought.1SG the paper to home for the Pedro

rever [-]$_i$ *logo*].

review.INF [-] afterwards

'I brought the paper home for Pedro to review later.'

Purpose relative

(11) [*O* peixe]$_i$ [*para grelhar* [-]$_i$] *está aqui.*

the fish for grill.INF [-] is here

'The fish to grill is here.'

Note further that, apart from subject gaps, purpose clauses and purpose relatives can have a gap either in object position (see 10 and 11 above) or in oblique position (12):

(12) a. *Aluguei* [*uma garagem*]$_i$[*para guardar o carro* **[-]**$_i$] (locative)

rented.1SG a garage for park.INF the car [-]

'I rented a garage to park the car.'

b. *Ainda não comprei* [*uma faca*]$_i$ [*para cortar* (instrument)

yet NEG bought.1SG a knife for cut.INF

o pão **[-]**$_i$].

the bread [-]

'I haven't bought a knife for cutting bread yet.'

Given this typology, it is obvious that the distinction between (non-relative, VP adjunct) purpose clauses and relative purpose clauses is frequently difficult, a

fact which is well-known in the literature (see Jones 1991: 48-49): the sentence in (13), which presents a purpose clause in final position and differs from (10) because it does not present material between the antecedent and the infinitival clause with the gap, is actually ambiguous between a VP adjunct structure and a relative clause structure.

(13) *Trouxe* [*o artigo*]$_i$ [*para o Pedro*
brought.1SG the paper for the Pedro
rever [-]$_i$ *logo*].
review.INF [-] afterwards
'I brought the paper for Pedro to review later.'

Jones (1991: 48-49) revises criteria that distinguish adjunct purpose clauses and relative purpose clauses, attributing them to Faraci (1974), Bach (1982) and Kirkpatrick (1982). The first criterion involves the position of the infinitival clause: if the purpose clause occurs between the subject and the VP, it is a relative clause (i.e. it actually is part of the subject DP). Therefore, the case of (11) above is unambiguously a relative clause, contrasting with (13), which is structurally ambiguous: it may have a purpose relative structure or a VP adjunct structure. In fact, we can prove it by showing that whereas the purpose clause in (11) must be clefted along with the preceding DP, the one in (13) may be clefted along with the antecedent but does not need to be. This is expected under the general assumption that purpose relatives and their antecedent form a constituent: the cleft in (15b) corresponds to the derivation of a purpose relative, whereas the cleft in (15c) corresponds to an adjunct purpose clause with a gap.

(14) (a. repeats 11)

a. O peixe [*para grelhar* [-]] *está aqui.*
the fish for grill.INF [-] is here
'The fish to grill is over here.'

b. É *o peixe para grelhar* que está aqui.
is the fish for grill.INF that is here
'What is here is the fish to grill.'

c. *É *o peixe* que está aqui *para grelhar*. (ungrammatical in the reading of a)

(15) (a. repeats 13)

a. *Ele trouxe o artigo* [*para o Pedro*

he brought.1SG the paper for the Pedro

rever [-] *logo*].

review.INF [-] afterwards

'He brought the paper for Pedro to review later.'

b. Foi o artigo para o Pedro rever logo
was the paper for the Pedro review.INF afterwards
que ele trouxe.

that he brought

'What he brought was the paper (in order) for Pedro review later.'

c. Foi *o artigo* que ele trouxe *para o Pedro rever logo*.

Another criterion pointed out by Jones (1991), who attributes it to Kirkpatrick (1982), is semantic: the content of a relative clause cannot be questioned, thus we cannot answer a yes-no question with an answer that has only to do with the content of the relative clause (16). This distinguishes relative clauses from purpose clauses with gap (16b) and from purpose clauses which are ambiguous between a VP adjunct reading and a relative clause reading (16c) (this last type of purpose clauses can be questioned in their VP adjunct interpretation).

(16) a. A: [*O peixe*] [*para ser grelhado*] *ainda não tem sal?*

the fish for be.INF grilled yet NEG has salt

'Does the fish to be grilled already have salt?'

B: **(*Não,) tem* [*para ser frito*].

no has.3SG for be.INF fried

b. A: *Compraste este peixe no mercado* [*para grelhar*]*?*
bought.2SG this fish in.the market for grill.INF
'Did you buy this fish at the market to grill?'
B: *(Não,) comprei* [*para fritar*].
no bought.1SG for fry.INF
'No, I bought it to fry.'

c. A: *Compraste o peixe* [*para grelhar*]*?*
bought.2SG the fish for grill.INF
'Did you buy the fish to grill?'
B: *(Não,) Comprei* [*para fritar*].
no bought.1SG for fry.INF
'No, I bought it to fry.'

Finally, also based on Jones (1991), we can list two other criteria to identify unambiguous purpose relatives: purpose relatives must have a DP with a lexical restriction as their antecedents and must precede finite relative clauses, as shown in (17) and (18).

(17) a. *Os alunos* [*para fazer exame*] *já chegaram todos.*
the students for do.INF exam already arrived all

'All the students who will take the exam have already arrived'

b. **Eles* [*para fazer exame*] *já chegaram todos.*
they for do.INF exam already arrived all

(18) a. *Os alunos* [*para fazer exame*] [*de quem te tinha falado*] *já chegaram todos.*
the students for do.INF exam of whom CL.2SG had.1SG spoken already arrived all
'The students that will be examined and whom I had spoken to you about have already arrived.'

b.* *Os alunos* [*de quem te tinha falado*] [*para fazer exame*] *já chegaram todos.*
the students of whom CL.2SG had.1SG spoken for do.INF exam already arrived all

Summarizing: we have therefore shown that purpose relative clauses introduced by *para* may be distinguished from non-relative infinitival purpose clauses with the same tests used to identify infinitival relatives in English. Nevertheless, in the next section, we will argue for a full CP analysis of all types of purpose relative clauses in EP (distinguishing them from certain types of reduced infinitival relatives discussed in Bhatt 2006).

3. Arguments for a homogeneous analysis of *para* purpose clauses

The first step we will take while discussing the structure of purpose clauses involves arguing that all *para* purpose clauses are CPs whose head is lexically filled by the complementizer *para* 'for' through external Merge. Actually, *para* 'for' in these clauses meets the criterion identifying lexical (prepositional) complementizers in EP which was proposed by Magro (2005): *para* triggers obligatory proclisis. Magro (2005) based her research in the study of CORDIAL-SIN, a dialectal corpus syntactically annotated, and showed that proclisis is used in 92.8% of the cases in clauses introduced by *para.* Inducing obligatory proclisis is a property of complementizers, but not a property of true prepositions. We can thus assume that *para* fills Cº and therefore that *para* clauses are CPs.[6] The examples in (19) show speakers' preference for proclisis in *para* VP adjunct clauses with a gap originated by Move (19e) and *para* purpose relatives (both with a subject gap (19a, b) and a non-subject gap (19c, d)). We will take these facts as an argument in favour of a full CP analysis of all types of *para* purpose relatives, including subject purpose relatives. This distinguishes these structures from the English subject infinitival relatives which Bhatt (2006) takes as reduced clauses.

(19) a. *O condutor*$_i$ *para* [-]$_i$ ***o*** *levar já foi contactado.*
the driver for CL.ACC.3SG take already was contacted
'The driver who will take him has already been contacted.'
(*/??*O condutor para levá-**lo** já foi contactado.)*

b. *O livro*$_i$ *para* [-]$_i$ ***lhes*** *ser lido está na prateleira.*
the book for CL.DAT.3PL be read is on.the shelf

'The book to be read to them is on the shelf.'

(*/?? *O livro para ser-**lhes** lido está na prateleira.*)

c. *O livro$_i$ para **lhes** ler* [-]$_i$ *está na prateleira.*

the book for CL.DAT.3PL read is on.the shelf

'The book which will be read to them is on the shelf.'

(*/?? *O livro para ler-**lhes** está na prateleira.*)

*d. A faca$_i$ para **o** cortar* [-]$_i$ *está na gaveta.*

the knife for CL.ACC.3SG cut is on.the drawer

'The knife for cutting it is in the drawer.'

(*/?? *A faca para cortá-**lo** está na gaveta.*)

*e. Trouxe o livro$_i$ para casa para **lhes** ler* [-]$_i$.

brought.1SG the book to home for CL.DAT.3SG read

'I brought the book home so I could read it to them.'

(*/?? *Trouxe o livro para casa para ler-**lhes***.)

Arguments against the analysis of *para* subject purpose relatives as reduced clauses come from the behaviour of the former as regular infinitival clauses, as shown by the fact that they allow auxiliary verbs (20), they do not impose restrictions on the classes of main verbs that may occur in the clause (21) and they accept inflected infinitive (21).

(20) *A comida para ser guardada no congelador está em*
the food for be.INF kept in.the freezer is on
cima da mesa da cozinha.
top of.the table of.the kitchen
'The food to be kept in the freezer is already on the kitchen table.'

(21) a. *Os atletas para correr(em) na maratona chegaram ontem.*
the athletes for run.INF in.the marathon arrived yesterday
'The athletes who will run the marathon arrived yesterday.'

b. *Foram recrutados nos países vizinhos operários estrangeiros*
were recruited in.the countries neighbors workers foreigners
para trabalhar(em) na construção dos estádios brasileiros.
for work.INF in.the construction of.the stadiums Brazilian
'Foreign workers from neighbor countries were recruited to work on the construction of the Brazilian stadiums.'

On the contrary, in reduced relatives, both participial and infinitival, auxiliaries are not possible (see the contrast between (22a and b, c)), only transitive verbs are allowed (see (23 a, b)), and the inflected infinitive is out (23c).[7]

(22) a. **A comida* [*sido guardada no congelador*] *é excelente*.
the food been kept in.the freezer is excellent
b. *A comida guardada no congelador é excelente*.

the food kept in.the freezer is excellent

c. *A comida a guardar no congelador é excelente.*
the food to keep in.the freezer is excellent

(23) a. **Os atletas* [*a correr na maratona*] *chegaram ontem.*
the athletes to run.INF in.the marathon arrived yesterday

b. **Operários estrangeiros* [*trabalhados na construção dos estádios brasileiros*] *foram recrutados nos países vizinhos.*
workers foreigns worked in.the construction of.the stadiums Brazilian were recruited in.the countries neighbor

c. **Os potros* [*a alimentarem amanhã*] *são de raça lusitana.*
the colts to feed.INF.3PL tomorrow are of breed Lusitana

Having shown that subject purpose relatives like those in (20)-(21) are not reduced relatives and that *para* purpose clauses are CPs whose head is filled by *para*, we will argue that there are reasons to assume a null operator analysis of *all* the structures in (19-21), both purpose VP adjunct clauses with gap (originated by Move) and purpose (subject and non-subject) relatives.

The first piece of evidence for an operator-variable analysis of purpose relatives and purpose VP adjuncts with gap which we will consider concerns the possibility of parasitic gap licensing. Parasitic gaps are known to be licensed by syntactic variables and indeed the gap in purpose clauses and in purpose relatives licenses parasitic gaps in the appropriate contexts (see 24a, a purpose VP adjunct clause with gap, and 24b, an object purpose relative). The unavailability of (24c) confirms the difference

between purpose clauses with and without gap: the purpose clause in (24c) does not present a null operator-variable chain; hence, and as expected, in the absence of a syntactic variable in the purpose clause, no parasitic gap is licensed in the adjunct clause.

(24) a. *Ele deu-me o cartão sapo* no domingo [**Op**$_i$ *para usar* **[-]**$_i$
he gave-CL the phonecard 'sapo' on Sunday to use.INF [-]
[*sem carregar* pg]].
without load.INF [-]
'Last Sunday he gave me the phonecard for using it without recharging.'

b. *Um cartão sapo* [**OP**$_i$ *para usar* **[-]**$_i$
a phonecard 'sapo' to use.INF [-]
[*sem carregar* pg]] foi-me dado no domingo
without load.INF [-] was-CL.ACC.1SG given on Sunday
'A phonecard for using it without recharging was given to me last Sunday.'

c. ??*Ele deu-me um cartão sapo* [*para* PRO *ter net*
he gave-CL a phonecard 'sapo' to have.INF internet
[*sem carregar* pg]].
without load.INF [-]
'He gave me a phonecard in order to have internet access without recharging it.'

Parasitic gap licensing only signals the presence of a variable in purpose clauses with gap, it does not necessarily argue for an operator-variable analysis of all these purpose clauses: actually, in the case of (24a), where the purpose VP adjunct clause does not form a constituent with the antecedent of the gap, only an operator movement analysis could be available; however, the presence of a variable in purpose relatives is compatible with either an operator movement (head external) analysis or a head raising one.

In order to decide between a head external and a head raising analysis of purpose relatives, we will consider Principle A effects, since one of the arguments for a head raising analysis of *that*/*que*-relative clauses actually comes from binding theory (Kayne 1994). Capitalizing on the discussion of Principle A effects and reconstruction in *wh*-interrogatives put forth in Chomsky (1993: 37 ff.), Kayne shows that *that/que*-relatives like (25) are also ambiguous between a reading where *John* or *Bill* is the binder of the anaphor *himself*.

(25) *John bought the picture of himself that Bill saw*.

(Kayne 1994: 87)

The high binder reading is accounted for both by the head external and by the head raising analysis; but the grammaticality of the low binder reading is evidence for the raising analysis, since it is obtained straightforwardly through reconstruction of the raised NP. Hence, strong evidence for the raising analysis comes from contexts where the anaphor only meets Principle A if reconstruction obtains. This is the case of sentences like (26a) and a corresponding sentence in Portuguese:

(26) a. *The portrait of himself$_i$ that John$_i$ painted is extremely flattering.*
(Schachter 1973, *apud* Bhatt 2006: 26)

b. *A fotografia de si próprio$_i$ que o Pedro$_i$ deu à*
the photo of he.OBL self that the Pedro gave to.the
Maria ganhou um prémio.
Maria won a prize
'The photo of himself that Pedro gave Mary won a prize.'

However, when we look at *para* purpose relative clauses and try to test their behaviour w.r.t. Principle A, a different grammaticality judgement is obtained, as (27), with an object purpose relative, shows.

(27) **A fotografia de si próprio$_i$ para o Pedro$_i$ dar*
the photo of he.OBL self for the Pedro give.INF
à Maria ganhou um prémio.
to.the Maria won a prize.

This result is a strong argument against an analysis of purpose relatives in terms of raising of the antecedent and distinguishes them from *that*/*que*-relatives. Therefore, parasitic gap effects and Principle A effects support our claim that *that/que*-relatives and purpose relatives have different derivations: whereas the former involve raising of the head in a Kayne-Bianchi way, the latter do not. In fact, on the basis of the above

mentioned effects, we can argue in favour of an operator movement analysis of purpose clauses with a gap in object position and object purpose relatives, while maintaining a head raising analysis for *that/que*-relatives.

We should now look at the particular case of subject purpose relatives, which we previously showed to be CPs, and discuss whether an operator movement analysis can also account for this particular structure. In first place, if *para* subject relatives involve an operator-variable chain (Op, t_i), we should start by explaining how this chain gets Case in a non-finite clause. Actually, European Portuguese displays inflected infinitive (see section 2) and *para* purpose clauses are a context for inflected infinitive (in fact, one of the more frequent contexts for inflected infinitives in spontaneous speech, according to Santos et al. 2013). The infinitives embedded in the sentences presented in (19) above do not bear overt morphology, but are actually ambiguous between a form of uninflected infinitive and the form of 3rd (or 1st) person singular of the inflected infinitive, which also does not take overt morphology (see 28, which presents a nominative subject licensed by the inflected infinitive form).[8] Therefore, in a language with inflected infinitive, such as European Portuguese, an operator-variable chain in subject position of the infinitival clause is not unexpected: Case is available in the subject position of an inflected infinitive.

(28) *O livro$_i$ para eu / ele lhes ler* [-]$_i$ *está na prateleira.*
the book for I / he CL.DAT.3PL read is on.the shelf
'The book which I / he will read to them is on the shelf.'

Now, the relevant fact for the discussion carried out here concerns cases where we find uninflected infinitive in subject purpose relatives. In fact, when the

antecedent of the relative is plural, we can find both inflected (29a) and uninflected (29b) infinitive.

(29) a. *Os condutores*$_i$ *para* [-]$_i$ *levarem os convidados já*
the drivers for take.INF.3PL the guests already
foram contactados.
were contacted
'The drivers who will take the guests have already been contacted.'

b. *Os condutores*$_i$ *para* [-]$_i$ *levar os convidados já*
the drivers for take.INF the guests already
foram contactados.
were contacted
'The drivers who will take the guests have already been contacted.'

In order to claim that *para* subject relatives involve an operator-variable chain (Op, t_i), we need to find arguments showing that in sentences like the one in (29b) the subject position is a Case-checking position, hence a position where a variable is possible.

This has indeed been shown to be the case of certain infinitival constructions in English and in French. To begin with, Pesetsky (1991) has shown that the complement of English *wager*-class verbs may take tails of A- and A'-chains as subjects, although not allowing PRO or lexical subjects.[9] Some years earlier, Kayne (1984) noticed the systematic contrast between lexical subjects on one hand and

variables and PRO on the other in the subject position of French *believe*-class verbs.[10] To our knowledge, the analyses proposed to account for these data resort to some external Case licenser (the higher verb or a functional projection of the higher clause), a possibility that is not available in purpose relative clauses.

However, the grammaticality of sentences like the ones in (30) shows that null operator chains may occur in contexts where no external Case licenser is available, providing an argument for an analysis of purpose relative clauses along the lines suggested here, since the subject DP of the clause, *the money*, is merged outside the purpose CP.

(30) a. *The money is* [*to be deposited, not wasted*].
(Landau 2001: 136)

b. *As jóias são* [*para ficar depositadas no banco*]
the jewels are to stay.INF deposited in.the bank
'The jewels are meant to be deposited in the bank.'

Assuming Landau's (2001) analysis of purpose predicates, who adopts Clark's (1990) general idea, the structure of (30) would be the one in (31).

(31) a. *The money$_i$ is* [Op$_i$ [t$_i$ *to be deposited, not wasted*]].
(Landau 2001: 136)

b. *As jóias$_i$ são* [$_{CP}$ Op$_i$ *para* [t$_i$ *ficar depositadas no banco*]].
the jewels are to stay.INF deposited in.the bank

The well formedness of structures like (31) led Clark (1990) to weaken the requirement that the tail of a null operator chain need to be in a Case checking position.[11] In other words, this amounts to suggest that in (31) the null operator chain is in fact of the form [PRO_i, …, ~~PRO_i~~],

This analysis could be extended to subject purpose relative clauses. An argument provided by Landau (2001) for such an extension comes from the observation that languages that allow subject-gap infinitival complements of non-psychological adjectives also allow for subject-gap infinitival relatives. This descriptive generalization holds in European Portuguese, as (32)-(33) show.

(32) a. *Os condutores$_i$* [*para* [-]$_i$ *levar os convidados*] *já*
the drivers for [-] take.INF the guests already
foram contactados.
were contacted
'The drivers who will take him have already been contacted.'

b. *Os condutores$_i$ estão* [*prontos* [*para* [-]$_i$ *levar os convidados*]].
the drivers are [ready [to [-] take the guests]
'The drivers are ready to take the guests.'

(33) a. *O peixe$_i$* [*para* [-]$_i$ *ser grelhado*] *está em cima da mesa.*
the fish to be.INF grilled is on.top of.the table

b. *O peixe$_i$ está [temperado [para [-]$_i$ ser grelhado]].*
the fish is seasoned to be.INF grilled

Finally, another piece of evidence in favor of a uniform analysis of subject and object purpose relatives, as well as purpose clauses with gap, comes from the observation of syntactic island effects under extraction.

In fact, both subject (34a) and non-subject (object, see 34b; locative, see 34c; instrument, see 34d) purpose relatives and adjunct purpose clauses with a gap (34e) exhibit strong island effects, like other non-finite relative clauses (34f) and contrary to adjunct clauses without a gap (34g), which behave as weak islands in Portuguese (Raposo 1992). If a null operator occupies Spec,CP in purpose relatives as well as in purpose clauses with a gap, these facts are straightforwardly accounted for[12].

(34) a. **Que meninos$_i$ é que contactaste um condutor$_k$ para [-]$_k$ levar [-]$_i$?*
which children is that contact.2SG a driver to take.INF

b. **A que meninos$_i$ é que compraste um livro$_k$ para ler [-]$_k$ [-]$_i$?*
to which children is that bought.2SG a book to read.INF

c. **Que livros$_i$ é que compraste uma estante$_k$ para pôr [-]$_i$ [-]$_k$?*
which books is that bought.2SG a shelf to put.INF

d. **Que bolos$_i$ é que compraste uma faca$_k$ para cortar [-]$_i$ [-]$_k$?*
which cakes is that bought.2SG a knife to cut.INF

e. **Que livros$_i$ é que compraste uma estante$_k$ ao Manuel*
which books is that bought.2SG a shelf to.the Manuel

para *pôr* [-]$_i$ [-]$_k$?

to put.INF

f. **Que* *livros*$_i$ *é* *que* *compraste* *uma* *estante*$_k$ *onde*$_k$ *pôr* [-]$_i$ [-]$_k$?

which books is that bought.2SG a shelf where put.INF

g. (?)*Que* *livros*$_i$ *é* *que saíste* *de* *propósito* *para* *comprar* [-]$_i$?

which books is that went.2SG.out on purpose to buy.INF

Summarizing: The contrast between (20, 21) and (22, 23) shows that subject purpose relative clauses are not reduced relatives; examples such as those in (19) show that *para* is a complementizer, hence that subject purpose relatives are indeed CPs; the island effects in (34) are evidence for the presence of a null operator-vbl chain. Finally, contrasts as those in (26) vs. (27) argue for a head external analysis of purpose relatives, as opposed to a raising analysis of finite relative clauses.

We thus suggest that purpose (subject or non-subject) relatives have an internal syntactic structure equivalent to adjunct purpose clauses with a gap. Purpose relatives should be assigned a syntactic structure with the antecedent external to the relative clause, and a null operator-variable chain internal to the clause (see 34a). We are thus claiming that the classic analysis of *that/que*-relatives put forth by Chomsky (1977, 1982) corresponds to the structure of a purpose relative, even though we assume a raising analysis of *that/que*-relatives, in terms of Kayne (1994) and Bianchi (1999)[13]. A non-raising analysis captures the intuition that purpose clauses with a gap and purpose relatives have the same internal structure, the only difference between them lying in the locus of attachment: a purpose relative is projected internally to the DP containing its antecedent; a purpose clause (with or without a gap) is attached to

*v*P/VP. Sentences such as (35) are thus cases of true structural ambiguity – the bracketing in (35a) expresses the interpretation of the sentence as a purpose relative; the bracketing in (35b) expresses the interpretation of the sentence as a purpose clause with gap.

(35) *Comprámos uma manta para usar na praia.*
bought.1PL a blanket for use.INF on.the beach

a. [$_{VP}$ *comprámos* **[**$_{DP}$ [*uma manta*$_i$][$_{CP}$ Op$_i$ [$_{C^o}$ *para*] [$_{TP}$ *usar* [-]$_i$ *na praia*]]]]
bought.1PL a blanket for use.INF [-] on.the beach

b. [$_{VP}$ **[**$_{VP}$ *comprámos* [$_{DP}$ *uma manta*$_i$]]**[**$_{CP}$ Op$_i$ [$_{C^o}$ *para*] [$_{TP}$ *usar* [-]$_i$
bought.1PL a blanket for use.INF [-]
na praia]]]
on.the beach

As referred to above, the null operator analysis is also at stake in sentences containing a *para*-clause to the right of a copular verb (see also the discussion in Landau 1999).

(36) *A manta é* [*para usar* [-] *na praia*].
the blanket is to use.INF [-] on.the beach
'The blanket is for using on the beach.'

(37) [*A manta*]$_i$ *é* [$_{CP}$ Op$_i$ [*para* [*usar* [-]$_i$ *na praia*]].

It is also possible to extend the operator-variable analysis to identificational clauses such as the one illustrated in (38), where a *para*-clause occurs in the answer to a *wh*-interrogative, assigning it the structure shown in (39).

(38) (pointing at a book)

A: *O que é isso?*

the that is that

'What is that?'

B. *É para pintar na praia.*

is.3SG for paint.INF on.the beach

'It's for coloring on the beach.'

(39) pro_i *é* [$_{CP}$ Op_i [*para* [PRO *pintar* [-]$_i$] *na praia*]]

In spontaneous speech, in particular in dialogues, one also finds, quite often, *para*-fragments like the one in (40).

(40) A: *Queres um bolo?*

want.2SG a cake

'Do you want a cake?'

B: *Para eu comer?*

for me eat.INF

'For me to eat?'

We suggest that the B utterance in (40) is a purpose clause with gap like the one presented in (41).

(41) [$_{CP}$ Op$_i$ [$_{C^o}$ *para*] [$_{TP}$ *eu comer* [-]$_i$]] (purpose clause)

Both cases involve the presence of a null operator-variable chain, i.e. the internal structure of the CP is actually exactly the same.

In the next sections, we present further arguments in favor of the idea that purpose relatives, as purpose VP adjuncts with a gap, present a null operator-variable chain derived by Move (and cannot be accounted for by a raising analysis). We show that our analysis of purpose relatives is supported by data coming from Capeverdean, a language presenting spelled-out traces, i.e. overt residues of movement: this language provides evidence that there is *wh*-movement inside a purpose relative or a purpose clause with gap as well as evidence that this *wh*-movement cannot be taken as raising of the DP antecedent (contra Bhatt's 2006 analysis of subject reduced relatives) and instead supports an analysis which distinguishes *that*-relatives from purpose relatives. We also show that such an analysis nicely accounts for the asymmetry found in early child production of the two types of relative clauses.

4. On the presence of a null operator-variable chain in Capeverdean *pa*-clauses

The hypothesis that both purpose clauses with gap and purpose relatives involve a null operator-variable chain is indeed supported by the behavior of purpose clauses in a language such as Capeverdean (variant of Santiago Island). In fact, just like Portuguese, Capeverdean exhibits several types of purpose clauses, all of them introduced by *pa* 'for', as in (42)-(43):

Purpose clause with gap

(42) *Bu leba* [*un libru*]$_i$ *pa kasa* [*pa le* [-]$_i$].

you took a book to house to read [-]

'You took a book home to read.'

Purpose relative

(43) a. *Un pexi*$_i$ [*pa stufa* [-]$_i$] *sta lisin.*

a fish to braise is right.here

'A fish to braise is right here.'

b. *Kel omi*$_i$ [*pa* [-]$_i$ *rapara karu*] *sta lisin.*

the.SG man for fix car is right.there

'The man who will fix the car is here.'

Capeverdean also displays finite relative clauses that are introduced by a different element, namely, *ki* 'that'. The relevant fact here is that Capeverdean PP relative clauses introduced by *ki* obligatorily involve an A´-chain of the type operator-*el* when there is a stranded preposition. In this A´-chain (Op, *el*), the foot of the chain is spelled out in the form of a 3rd person singular pronoun (*el*)[14]:

(44) *N ka atxa* [$_{DP}$ *kes* [$_{CP}$ [$_{DP}$ ***txabi***]$_i$ [$_C$ *ki*] *bu abri porta ku-****el***$_i$]].

I NEG found the.PL key that you opened door with-3SG

'I didn't find the keys you opened the door with.'

Adopting a raising analysis for *that*/*ki*-relatives, the operation Move applies to the DP relative head ([$_{DP}$ D^o *txabi*] in (44)), raising it to Spec,CP, while one of

the formal features of the foot of the chain (namely, [+D]) survives in the phonological component and is spelled out in the form of *el* (a defective copy, according to Alexandre 2012).[15] As we can see in (45), to spell out this feature in the complement of the preposition is mandatory, since the language does not display the English-type preposition stranding.

(45) **N ka atxa [kes txabi]$_i$ ki bu abri porta ku [-]$_i$.*

I NEG found the.PL key that you opened door with [-]

In a parallel way, purpose relatives introduced by *pa* in Capeverdean allow for a phonologically overt defective copy when the gap in the purpose relative corresponds to an argument or an adjunct PP (see 46). As shown in (47), this is equally true for purpose clauses with a gap that do not form a constituent with the antecedent DP. Extending to these cases the criteria defined by Alexandre (2012), the lack of (number) agreement between the foot of the A´-chain *el* and the head both in (46) and (47) shows that *el* is a defective copy sitting at the foot of a chain built by Move.

(46) *Nu kunpra [kes faka-li]$_i$ [$_{CP}$ Op$_i$ pa mata porku ku-**el**$_i$].*

I bought the.PL knife-PROX for kill pig with-3SG

'We bought these knives to kill pigs.'

(47) *Nu kunpra [kes faka-li]$_i$ onti*

we bought the.PL knife-PROX yesterday

*[$_{CP}$ Op$_i$ pa mata porku ku-**el**$_i$].*

for kill pig with-3SG

'Yesterday we bought these knives to kill pigs.'

We must stress that *el* at the foot of the chain both in (46) and (47) is the output of Move and not a resumptive pronoun generated by Merge and bound by an operator. The distinction between these two syntactic objects (defective copy and resumptive pronoun) may not be obvious, but it is very important in

Capeverdean, since they exhibit different properties.[16] In Capeverdean, a resumptive pronoun occurs typically in syntactic island contexts, as in (48), a context where a defective copy cannot occur (see the contrast in (48)). Outside island contexts, a resumptive pronoun can also occur as an alternative strategy to the defective copy. However, a major distinction must be made between defective copies generated by movement and resumptive pronouns: the latter obligatorily agree in number with the head of the relative clause (e.g. *mudjeris* 'women' in (48 and 49)); they behave as 'true' pronouns, since they can be coordinated, as in (50); finally, they do not license parasitic gaps (see (51)).

Complex NP Island

(48) [*Ki mudjeris*]$_i$ *ki dja bu atxa*

which women that already you found

[$_{DP}$ *un omi* [$_{CP}$ *ki papia ku-*[***es***/**el*]$_i$]]?

a man that talked with-3PL/3SG

'Which women did you found a man that talked with them?'

(49) [$_{DP}$ [*Tudu kes mudjeris*]$_i$ [$_{CP}$ *ki Djon paxona pa-*[***es***]$_i$]]

all the women that Djon fell.in.love for-3PL

imigra pa Purtugal.

immigrated to Portugal

'All the women Djon fell in love with immigrated to Portugal'.

(50) *N ka odja* [$_{DP}$ [*kes mininu femia*]$_i$ *ki Djon paxona*

I NEG saw the.PL boy female that Djon fell.in.love

pa [$_{Coord}$ [***es***]$_i$ *y pa tudu kes mudjeris ki ta badja sabi*]].

for 3PL and for all the women that IPFV dance well

'I didn't see the girls who Djon fell in love with and he also fell in love with all the women that dance well.'

(51) *[$_{DP}$ [*Kes faka*]$_i$ [$_{CP}$ *ki nu konsigi abri porta ku-*[***es***]$_i$]]

the knife that we can open door with-3PL

[$_{CP}$ *sen nu rabenta* pg] *e rei di prigos.*

without we break be very of dangerous

As opposed to resumptive pronouns, the defective copy *el*, which results from Move, behaves as a syntactic variable, being excluded from island contexts (see 48 above), not being coordinated (52), and licensing parasitic gaps (53).

(52) **N ka odja* [$_{DP}$ [*kes mininu femia*]$_i$ *ki Djon paxona*

I NEG saw the.PL boy female that Djon fell.in.love

pa [$_{Coord}$ [***el***]$_i$ *y pa tudu kes mudjeris ki ta badja sabi*]].

for 3PL and for all the women that IPFV dance well

(53) [$_{DP}$ [$_{CP}$ *Kes faka*]$_i$ *ki nu konsigi abri porta ku-*[***el***]$_i$]]

the.PL knife that we can open door with-3PL

[$_{CP}$ *sen nu rabenta* pg] *e rei di prigos.*

without we break be very of dangerous

'The knives that we managed to open the door with without damaging are very dangerous.'

These facts support a Merge analysis of resumptive pronouns in Capeverdean, specifically, taking *es* 'them' to be in the initial array of lexical items in the Numeration and the head of the relative clause (the *wh*-operator) to be Merged directly in Spec,CP. Therefore, the relation between the head and the foot of this A´-chain is captured by an A´-binding relation and not by Move.

The presence of the spelled-out trace *el* in (46) and (47) above thus confirms that there is wh-movement in a purpose relative as well as in a purpose clause with gap, and to this extent these facts are compatible with a similar analysis of the CP in both structures. However, a similar analysis of both purpose relatives and purpose clauses with gap depends on rejecting a raising analysis of purpose relatives. Indeed, Capeverdean data show that *wh*-movement in

that/ki-relatives is not the same as *wh*- movement in purpose relatives. The relevant data are presented in (54) and (55).

(54) * *Nu kunpra* [$_{CP}$ [*kes faka-li*]$_i$ *ki bu mata porku* [-]$_i$].[17]

we bought the.PL knife-PROX that 2SG kill pig [-]

(55) *Nu kunpra* [*kes faka-li*]$_i$ [$_{CP}$ Op$_i$ *pa mata porku* [-]$_i$].

we bought the.PL knife-PROX for kill pig [-]

'We bought these knives to kill pigs.'

Whereas the ungrammaticality of (54) is due to the absence of the spelled out trace *el* and to the chopped preposition, the spelled out trace is not mandatory in the purpose relative clause if the preposition is dropped (55).[18] In the *that*/*ki*-relative, the DP [Dº *kes faka-li*] was extracted from an embedded PP and moved as the head of the *wh*-chain; this moved DP is spelled out as *el* in a language without preposition stranding (see further discussion in Alexandre 2012). On the contrary, in the case of a purpose (relative) clause, what gets extracted is a null operator. In this case, either this null operator is embedded in a PP and a spelled out *el* is needed to allow the preposition to survive (see 45 and 46) or it is not embedded in a PP and no *el* is spelled out (this is the case of 55).

Capeverdean data is thus particularly clear in showing how similar but also how different are *that*-relatives and purpose relatives. In the next subsection we show that only taking these structures as different can we account for another set of data, coming from early stages of acquisition of relative clauses.

5. A note on the acquisition of *para*-clauses in European Portuguese: early asymmetries between *that/que*-relatives and purpose relatives

It is a well-established fact that relative clauses do not stabilize early in acquisition (see the pioneer work of Sheldon 1974, Tavakolian 1981, Hamburger and Crain 1982, as well as much subsequent work, e.g. Vasconcelos 1991 for European Portuguese). Some more recent work has highlighted a subject / object asymmetry in the acquisition of relatives (as well as other structures involving A'- movement): object relatives seem to be more difficult than subject relatives (see the revision in

Friedmann and Novogrodsky 2004, as well as Adani et al. 2010; a confirmation of these facts for European Portuguese is found in Costa et al. 2009 and Baptista et al. 2010).

The recent analysis of Friedmann et al. (2009) suggests that the difficulty with object relatives results from the effect of an extended version of Relativized Minimality which would be operative in child grammar. According to these authors, children between 3;7 and 5;0 show difficulty in comprehension and production of Hebrew object relatives when the subject position in the relative clause is filled by a certain type of DP. This difficulty is interpreted as an intervention effect caused by an overt DP subject (in the relative clause) whose features are either identical to the features of the relative chain, or a subset thereof. A raising analysis of relatives is necessarily assumed as the basis of this hypothesis.

Indeed, the relative clauses and the purpose clauses with a gap (generated by operator movement) discussed in this paper are subject or non-subject relatives (including locative or instrument relatives), but according to what has been proposed in the previous sections, they do not involve raising of the DP antecedent from a position internal to the relative clause. Instead, we suggested that a null operator is moved to Spec,CP in purpose relatives and in purpose clauses with gap and we do not expect a null operator to show formal features identical to the lexical subject it crosses over in the relative clause.

Therefore, if our analysis is on the right track, we expect that purpose clauses with a non-subject gap (even those presenting an overt DP subject) are not as difficult for children as *that/que*-relatives: in the case of purpose clauses, the DP antecedent is not generated in a position inside the *para*-clause and only a null operator, with no

lexical features, is moved from an internal position. Nevertheless, we could, of course, think that a null operator is by itself problematic for children. Vainikka and Roeper (1995) show that children between three and six years of age are able to interpret null operators in relative clauses, but it is not clear whether these structures are problematic for children under three.

The predictions before mentioned were evaluated through the analysis of a spontaneous production corpus of European Portuguese (Santos 2009). The corpus is composed by the spontaneous speech of three children in beginning stages of acquisition: 1;6.6 – 3,11.12, 1;6.18-2;9.7, 1;5.9-2;7.24 (MLUw 1.2-3.8). The corpus contains over 1800 child utterances, which were evaluated both concerning emergence of the different relevant structures and relative frequency of those structures.

The analysis of the corpus shows that 143 relative clauses where produced by children, including 87 *para* 'for' purpose relatives / purpose clauses with a gap generated by Move (19 with antecedent – of the type of (35), 40 in structures with a copula verb – of the type of (36 or 38) - and 28 in fragments without a copula verb – of the type of (40)). We will refer to all these structures as *para* purpose clauses with gap, although we are aware that they include both purpose relatives and other clauses with a similar internal structure. All these are *para* purpose clauses with object, instrument or locative gaps, see the examples in (56) to (58). Now if we reduce the time window under observation, we are able to combine results concerning first occurrence and frequency: taking into consideration only the first year of data collection (1;5/1;6 – 2;6), 33 out of the 42 relatives and purpose clauses with gap produced in the period are purpose clauses with a gap.

It is nevertheless possible to produce a finer-grained analysis of the emergence of the different types of relative clauses. If we are discussing predictions based on Friedmann et al.'s (2009) hypothesis, it is particularly relevant to compare first occurrence of *that/que*-relatives with an overt subject and first occurrence of purpose relatives / purpose clauses with gap also with an overt subject. Data allow us to confirm earlier occurrence of *para* purpose relatives, also in this case: in the case of two of the children (TOM and INI), purpose relatives with a lexical subject occur before *that/que*-relatives. INI produces at 2;1 a headed instrument purpose relative, at 2;5 a headed object purpose relative and at 2;3 a purpose clause with a gap in a copula structure; only at 2;5 does she produce an object *that/que*-relative (data in 56-58). TOM produces a *para* purpose clause with gap in a fragment at 1;11, a *para* purpose clause with gap in a copula structure at 2;6 and a *para* purpose relative with antecedent at 2;9; at 2;7 he produces an object *that/que*-relative (data in 59-62). The third child, INM, does not produce *that/que*-relatives in the recorded period (1;5-2;7), but she indeed produces 8 *para* purpose relatives / purpose clauses with gap (4 in fragments), starting at 2;4. All the purpose relatives and purpose clauses with gap produced by INM present a null subject.

(56) MJF: *a comer o quê ?*
to eat.INF the what
'… eating what?'
INI: *aquelo [: aquilo] que ela tem.* 2;5
that that she has
'.. what she has.'

(57) MJF: *que é isso?*

what is that

'What is that?'

INI: *é pa(ra) a boneca mo(r)der.* 2;3

is for the doll bite.INF

'It's for the doll to bite.'

(58) a. MAE: *o que é isso?*

the what is that

'What is that?'

INI: *uma ma(n)ta pa(ra) a nenê@f tapar.* 2;1

a blanket for the Nenê cover.INF

'It's a blanket for the baby to cover himself.'

b. INI: *ce(re)ais # pa(ra) eu comer .* 2;5

cereals for I eat.INF

'It's cereal for me to eat.'

(59) TOM: <*e disse*> [/] # *e disse a mim* [?] # *eu vou pô(r)*

and said.3SG and said.3SG to me I go put.INF

co(l)a na [//] # nesta nota qu(e) o avô Zé

glue in.the in.this bill that the grandfather Zé

deu 2;7

gave

'…and I said: I'm going to put glue on this bill that grandfather Zé gave to me.'

(60) TOM: *pó* [: *para o*] *u(r)so come(r)* . 1;11

for the bear eat.INF

'…in order for the bear to eat.'

(61) a. TOM: *é pa(ra) o popós ent(r)a(r)* . 2;6

is for the cars enter.INF

'It's for the cars to get in.'

b. TOM: *foi pa(ra) ele acender* . 2;9

was for he light.INF

'It was for him to light.'

(62) TOM: *tenho aqui um* [/] # *um* [//] *out(ro) banco #*

have.1SG here a a other stool

pa(ra) eu faze(r) assim campeone! 2;9

for I do.INF like.this champion

'I have another stool here for me to do like this: champion!'

In case we assume an analysis of purpose relatives such as the one we developed here and an analysis of intervention effects such as the one in Friedmann et

al. (2009), these data are indeed expected: object purpose relatives and purpose clauses with an object gap emerge earlier (and are more frequent earlier) than object *that/que*-relatives because they involve movement of an operator and not movement of a DP.

However, one could argue that neither object *that/que*-relatives nor the object purpose relatives that children produce in these first stages are of the type in which we expect the strongest intervention effects (they present pronominal subjects or an animate subject and a non-animate object[19]). It may be that higher similarity between the moved element and the crossed element justifies higher complexity in processing (even though it is still not clear which features, grammatical or lexical, count to define this similarity – see Adani et al. 2010, for different effects of gender and number features). Even though neither *that/que*-relatives nor the purpose relatives that children produce present the potential highest level of complexity (if intervention effects are taken into account), the fact is that purpose relatives and purpose clauses with gap are more frequent earlier than *that/que*-relatives. This may actually happen for two reasons. First, as we have suggested, purpose relatives do present the lowest level of complexity in terms of potential intervention effects: if our analysis is correct, in an object purpose relative a moved null operator crosses the subject, whereas in object *that/que*-relatives it is the antecedent DP that crosses it. Secondly, we would also like to recall that we have suggested a systematic structural ambiguity between purpose relatives (projected within the DP) and purpose clauses (attached to *v*P/VP). We cannot exclude that (what we take as) certain purpose relatives in child speech are projected as VP adjunct purpose clauses and thus do not imply embedding in the DP

(even though they necessarily imply to project a CP and to move a null operator to Spec,CP).[20]

Finally, let us point out that purpose relatives, which are non-finite clauses, emerge earlier than finite relatives, even though they involve overt subjects in contexts of inflected infinitive (see Santos et al. 2011).

We can account for the data presented in this section if we assume a non-uniform analysis for *that/que* and purpose relatives and, furthermore, if we assume for purpose relatives an analysis which avoids intervention effects. This is the case of the null operator analysis we have suggested for purpose relatives. As an additional conclusion, and if this analysis is on the right track, these data also show that a null operator in purpose relatives is not problematic for children, even before 3;0.

6. Conclusion

In this paper we discussed the syntactic structure of *para* 'for' purpose clauses. Our discussion focused on VP adjunct purpose clauses with a gap and on purpose relative clauses, and we argued for a homogeneous CP analysis of both types of clauses. We also showed that this analysis applies both to non-subject and to subject *para* relative clauses. Based on contrasts concerning extraction and parasitic gap licensing, we proposed that both purpose clauses with a gap and purpose relative clauses are null operator structures, therefore the antecedent of purpose relatives was argued to be external to the relative clause. We extended the null operator analysis to secondary CP predicates in copular sentences and to fragments. On the contrary, we maintained that the derivation of *that/que*-relative clauses in Portuguese involves raising of the antecedent DP.

Two independent arguments were provided in favor of the analysis. We presented crosslinguistic evidence from Capeverdean, a Portuguese-related creole, showing that the corresponding purpose relative clauses headed by *pa* are derived through Move, but that the derivation of purpose relatives and *that/ki*-relatives is different. We also provided an argument from acquisition, based on a delay in the emergence of purpose relative clauses / purpose clauses with gap and *that/que*-relative clauses in children acquiring L1

European Portuguese. We interpreted this delay as a consequence of two facts: (i) the different derivational story of both types of relative clauses, namely, the fact that purpose clauses do not involve raising of the antecedent DP and hence no intervention effects are expected to occur, contrary to what happens in *that/que*-relative clauses; (ii) the systematic ambiguity between purpose clauses (attached to the *v*P/VP) and true purpose relative clauses, embedded in a DP.

Notes

1. In Chomsky's (1977) paper, it is proposed that the following configuration serves as "a kind of 'diagnostic'" for what was then called *wh*-movement:

"(49) a. it leaves a gap

b. where there is a bridge, there is an apparent violation of subjacency, PIC and SSC

c. it observes CNPC

d. it observes *wh*-island constraints."

(Chomsky 1977: 86)

It is also proposed that infinitival relatives like *John found a book to read* (ex. 105: 99) and *John found a book for you to read* (ex 106a: 99) are derived through *wh*-movement.

2. (3) is adapted from (i), below:

(i) *the book* [$_{S'}$ [$_{COMP}$ O_i *that*] [$_S$ *I read* t_i]

(Chomsky 1982: 102)

3. In fact, he considers subject relatives like the one in (5) Participle Phrases (see (58b): 33), but he does not commit himself to the categorial nature of infinitival subject relatives like *The man to fix the sink* (ex. (3a): 9).

4. An anonymous reviewer suggests that this sentence could in principle be derived by relative clause extraposition. However, sentence (10) in the text cannot be analyzed as an extraposed relative clause. In fact, relative clause extraposition is very restricted in contemporary European Portuguese. According to Cardoso (2011), it exhibits a definiteness effect, thus excluding *o artigo* 'the article' in (10) as a dislocated antecedent of a stranded relative clause. See the contrast in (i).

(i) a. *Encontrei* [*um rapaz*] *no cinema* [*que perguntou por ti*].

met:1SG a boy at.the cinema that asked for you

'I met a boy at the cinema that asked for you.'

b. **Encontrei* [*o rapaz*] *no cinema* [*que perguntou por ti*].

met:1SG the boy at.the cinema that asked for you

'I met the boy at the cinema that asked for you.'

(Cardoso 2011: 113-114)

5. In this case, we have identified the subject of the sentence as PRO. However, since purpose clauses are contexts where inflected infinitives are generally possible and since inflected infinitives in 1st (and 3rd) person singular take phonetically null morphology, this sentence is actually ambiguous between a uninflected infinitive clause with a PRO subject and an inflected infinitive clause with a 1st person sg *pro* subject.

6. See Santos et al. (2013), who claim that *para* introducing inflected infinitival clauses *must* be a complementizer filling Cº.

7. (23a) is ungrammatical as a (to) reduced infinitival clauses, and not as Prepositional Infinitival Constructions (PIC), the former having an irrealis interpretation and the latter a gerundive interpretation. It is also the case that the a reduced infinitival clause induces enclisis, as shown in (i), which shows that *a* is a preposition, not a complementizer, contrary to *para*.

(i) *As prendas a oferecer-lhe/*lhe oferecer já foram compradas.*

the presents to offer.INF-him /*him offer already were bought

'The presents to offer him were already bought.'

8. See note 5.

9. See the following examples:

(i) a. **John wagered* [PRO *to be crazy*].

(Bošković 1997: 52)

b. **John wagered* [*Peter to be crazy*].

(Bošković 1997: 52)

c. *John$_i$ was wagered by the press* [t_i *to be crazy*]

d. *Who$_i$ did John wager* [t_i *to be crazy*]?

(adapted from Bošković 1997: 61)

10. See the following examples adapted from Kayne (1984):

(i) a. **Je crois/reconnais/constate Jean être le plus intelligent de tous.*

(Kayne 1984: 111).

b. *Je crois/reconnais/affirme* [PRO *avoir fait une erreur*].

(see Kayne 1984: 112).

c. *Quel garçon$_i$ crois/reconnais/affirmes-tu* [t_i *être le plus intelligent de tous*]?

(id.: 111)

11. "A null operator chain in [$_{CP}$ Op$_i$ […t_i…]] is licit if and only if either t_i or CP (or both) are not in a case position. Otherwise, the operator must be realized overtly." (*apud* Landau 2001: 136-137).

12. Additionally, the fact that locative and instrument purpose relatives and, especially, purpose clauses with a locative or instrument gap (see 34e) exhibit the same type of strong island effects as object purpose relatives is an argument to claim that the locative and the instrument gap is a syntactic variable (and not the result of an interpretation derived by pragmatic reasoning).

13. We assume that *que* in EP is merged in Cº, as it has been generally claimed to be the case for the relative clause complementizer in other Romance languages (Cinque 1982, a.o.). Moreover, subjacent to our proposal is the idea that the raising analysis is not fit for every type of relative clause either in the same language or crosslinguistically. This idea is also argued for e.g. in Manninen (2003), who claims

that there are not arguments in Finnish to support the head raising analysis of relative clauses. See the illformedness of (ii), a that/que-relative clause, which patterns with (27) and not with (26). See also Hulsey and Sauerland (2006), who investigate restrictive relative clauses in English and suggest that they are structurally ambiguous between a raising structure and a matching structure.

(i) *Sirkku$_i$ näki* [*tämän* [*kuvan itsestään$_i$*]]

Sirkku saw this picture of-self-Px

'Sirkku$_i$ saw this picture of herself$_i$'

(Manninen 2003, (32a))

(ii) *[[*kuva itsestään$_i$*] *jonka*] *Sirkku$_i$ näki* [-]

picture of-self-Px which Sirkku saw

(Manninen 2003, (32b))

14. However, if the relativized element is a DP (and not a PP), the foot of the A´-chain is null, as in (i).

(i) *Nhos kunpra* [*kel libru*]$_i$ *k'N le* [-]$_i$ *na skola.*

you bought the.SG book that-1SG read [-] in school

'You bought the book that I read at school.'

15. As we stated before, we follow Bianchi's (1999) proposal for *that*-relatives, inspired in Kayne (1994), and therefore we assume that a DP and not a NP is the antecedent of the relative clause. In (44), the [$_{DP}$ *txabi*] is plural because in Capeverdean number marking is specified in Dº and the [number] feature of Nº agrees with it. Notice, however, that number marking in Capeverdean may show up in [+human] nouns (like *mudjeris* 'women', in (48) below) – see Alexandre and Soares (2005), who study bare nouns and the expression of definiteness in Capeverdean.

16. For an extensive discussion concerning the distinction between defective copies and resumptive pronouns, see Alexandre (2012).

17. Some speakers marginally accept (54), although they still report they feel a clear contrast between (54) and (55).

18. In the case of (55), the gap does not have an overt counterpart. However, it is not the case that the instrument in the embedded clause is recovered by pragmatic reasoning. As the contrast between (i) and (ii) shows, the gap in (ii) is left by local A´-movement (see a similar argument for European Portuguese in note 12).

(i) *Ki* *limarias*$_k$ *ki* *bu* *bai* *merkadu* *pa* *kunpra* [-]$_k$?
which animals that 2SG went market for buy
'Which animals did you go to the market to buy?'

(ii) $^{??/*}$*Ki* *limarias*$_k$ *ki* *bu* *kunpra* *kes* *faka-li*$_i$ *pa mata* [-]$_k$ [-]$_i$?
which animals that 2SG bought DEM knife-PROX for kill

19. See Friedmann et al.'s (2009) account of free object relatives and headed object relatives with a null subject pronoun, showing that these are cases in which we do not expect strong intervention effects.

20. Notice however that several child productions could not correspond to a projection of the *para* clause as a VP adjunct. Relevant cases are (58a) and (58b): in these cases, the *para* clause must be internal to the DP, whether a DP adjunct or a complement of D. In these cases, independently of the head external or raising analysis, the child must be able to project a DP with the appropriate level of complexity.

References

Adani, Flavia; Heather K. J. van der Lely; Matteo Forgiarini & María-Teresa Guasti. 2010. Grammatical Feature Dissimilarities Make Relative Clauses Easier: a Comprehension Study with Italian Children. *Lingua*. 120(9-3). 2148-2166.

Alexandre, Nélia. 2012. *The Defective Copy Theory of Movement: evidence from wh-constructions in Cape Verdean Creole*. Amsterdam: John Benjamins.

Alexandre, Nélia & Nuno Soares. 2005. O domínio nominal em Crioulo de Cabo Verde: o puzzle dos Bare Nouns [The dominal domain in Cape Verdean Creole: the bare noun puzzle]. In I. Duarte and I. Leiria (orgs.). *XX Encontro Nacional da APL*. Lisboa: Colibri. 335-350.

Baptista, Adriana; Catarina Afonso, Fátima Alexandrina Martins & Sónia Rodrigues. 2010. Compreensão de orações relativas. Metodologia Act-Out [Comprehension of relative clauses. The act-out method]. Paper presented at the seminar *Sintaxe e Linguística Educacional*, of the Doctoral Program *Voz, Linguagem e Comunicação*, Lisboa: FLUL.

Bhatt, Rajesh. 2006. *Covert Modality in non-Finite Contexts*. Berlin: Mouton de Gruyter.

Beavers, John & Emily Bender. 2004. Gap-less instrumental relative clauses in English. http://comp.ling.utexas.edu/~jbeavers/instrel-handout.pdf (accessed 5 May 2010).

Bianchi, Valentina. 1999. On resumptive relatives and the theory of LF chains. *Quaderni del Laboratorio di Linguistica* 12-13, Pisa: Scuola Normale Superiore. 79-99.

Bošković, Željko. 1997. *The Syntax of Nonfinite Complementation*: *An Economy Approach*. MIT Press.

Cardoso, Adriana. 2011. *Variation and Change in the Syntax of Relative Clauses: new evidence from Portuguese.* Lisboa: University of Lisbon PhD Dissertation.

Chomsky, Noam. 1977. On Wh Movement. In P. Culicover; T. Wasow and A. Akmajian (eds.). *Formal Syntax*. New York: Academic Press. 71-132.

Chomsky, Noam. 1982. *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge, MA: MIT Press.

Chomsky, Noam. 1993. A Minimalist Program. In Hale, K. and Keyser, S. J. (eds.). *View from Building 20*. Cambridge, MA: MIT Press.

Cinque, Guglielmo. 1982. On the theory of relative clauses and markedness. *The Linguistic Review* 1(3). 297-343.

Costa, João; Maria Lobo; Carolina Silva & Elisa Ferreira. 2009. Produção e compreensão de orações relativas em português europeu: dados do desenvolvimento típico, de PEDL e do agramatismo [Production and comprehension of relative clauses in European Portuguese: data from typical language development, SLI and agrammatism]. In A. Fiéis & A. Coutinho (eds.). *Textos Seleccionados do XXIV Encontro da Associação Portuguesa de Linguística*. Lisboa: APL. 211-224.

Friedmann, Naama; Adriana Belletti & Luigi Rizzi. 2009. Relativized relatives: Types of intervention in the acquisition of A-bar dependencies. *Lingua* 119(1). 67-88.

Friedmann, Naama & Rama Novogrodsky. 2004. The acquisition of relative clause comprehension in Hebrew: a study of SLI and normal development. *Journal of Child Language* 31. 661-681.

Grillo, Nino. 2005. Minimality effects in agrammatic comprehension. In Blaho, S., Schoorlemmer, E., Vicente, L. (eds.). *Proceedings of ConSOLE XIII*. 106–120. http://www.sole.leidenuniv.nl/ (accessed 22 March 2010).

Grillo, Nino. 2008. *Generalized minimality: syntactic underspecification in Broca's aphasia*. Utrecht: University of Utrecht PhD Dissertation.

Hamburger, Henry & Stephen Crain. 1982. Relative acquisition. In S. Kuczaj (ed.). *Language Development: Syntax and Semantics*. Hillsdale, N.J.: Lawrence Erlbaum.

Hulsey, Sarah & Uli Sauerland. 2006. Sorting out relative clauses. *Natural Language Semantics* 14. 111-137.

Jones, Charles. 1991. *Purpose Clauses. Syntax, Thematics and Semantics of English Purpose Constructions*. Dordrecht: Kluwer.

Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.

Landau, Ian. 1999. Psych-adjectives and semantic selection, *WCCFL*, 18.

Landau, Ian. 2001. *Elements of Control. Structure and Meaning of the Infinitival Constructions*. Dordrecht: Kluwer.

Lobo, Maria. 2003. *Aspectos da Sintaxe das Orações Subordinadas Adverbiais do Português* [Aspects of the syntax of adverbial subordinate clauses in Portuguese]. Lisboa: New University of Lisbon PhD dissertation.

Madeira, Ana Maria. 1994. On the Portuguese inflected infinitive. *UCL Working Papers in Linguistics* 6. 180–203.

Magro, Catarina. 2005. Introdutores de orações infinitivas: O que diz a sintaxe dos clíticos [Introducting nonfinite clauses: what the syntax of clitics tell us about

them]. In I. Duarte and I. Leiria (eds.). *Actas do XX Encontro Nacional da APL. Lisboa*: APL. 649-664.

Manninen, Satu. 2003. To raise or not to raise: the case of Finnish restrictive relative clauses. *Nordlyd* 31(4). 668-693

Móia, Telmo. 1992. *A Sintaxe das Orações Relativas sem Antecedente Expresso do Português* [The syntax of relative clauses without an overt antecedent in Portuguese]. Lisboa: FLUL MA thesis.

Pesetsky, David. 1991. *Zero Syntax, Vol 2*. Cambridge, MA: MIT Press. http://web.mit.edu/linguistics/people/faculty/pesetsky/infins.pdf (accessed 3 June 2011).

Pratas, Fernanda. 2007. *Tense Features and Argument Structure in Capeverdean Predicates*. Lisboa: New University of Lisbon PhD Dissertation.

Raposo, E. 1987. Case theory and Infl-to-Comp: The inflected infinitive in European Portuguese. *Linguistic Inquiry* 18. 85-109.

Raposo, Eduardo. 1992. *Teoria da Gramática. A Faculdade da Linguagem* [The theory of grammar. The language faculty]. Lisboa: Ed. Caminho.

Santos, Ana Lúcia 2006. *Minimal Answers. Ellipsis, syntax and discourse in the acquisition of European Portuguese*. Lisboa: University of Lisbon PhD Dissertation.

Santos, Ana Lúcia; Inês Duarte; Acrísio Pires & Jason Rothman. 2011. Early inflected infinitives and late V-to-C movement. In N. Danis, K. Mesh and H. Sung (eds.). *Proceedings of the 35th Boston University Conference on Language Development.* Somerville, MA: Cascadilla Press. 540-552.

Santos, Ana Lúcia; Jason Rothman; Acrísio Pires & Inês Duarte. 2013. Early or late acquisition of inflected infinitives in European Portuguese?: Evidence from spontaneous production data. In Becker, M., J. Grinstead and J. Rothman (eds.). *Generative Linguistics and Acquisition: Studies in Honor of Nina M. Hyams*. Philadelphia: John Benjamins. 65-88.

Sheldon, Amy. 1974. The role of parallel functions in the acquisition of relative clauses in English. *Journal of Verbal Learning and Verbal Behavior* 13. 272-281.

Tavakolian, Susan. 1981. The conjoined-clause analysis of relative clauses and other structures. In S. Tavakolian (ed.). *Language Acquisition and Linguistic Theory*. Cambridge, MA: The MIT Press.

Vainikka, Anne & Thomas Roeper. 1995. Abstract operators in early acquisition. *The Linguistic Review* 12. 275-310.

Vasconcelos, Manuela. 1991. *Compreensão e Produção de Frases com Orações Relativas: um estudo experimental com crianças dos três anos e meio aos oito anos e meio* [Comprehension and production of relative clauses: an experimental survey with children from 3;6 to 8;6]. Lisboa: FLUL MA thesis.

Glosses

ACC = Accusative

CL = clitic

DAT = Dative

INF = infinitive

IPFV = imperfective

NEG = negation

OBL = oblique

PL = plural

POSS = possessive

PROX = proximal

SG = singular

SUBJ = subjunctive

1, 2, 3 = persons